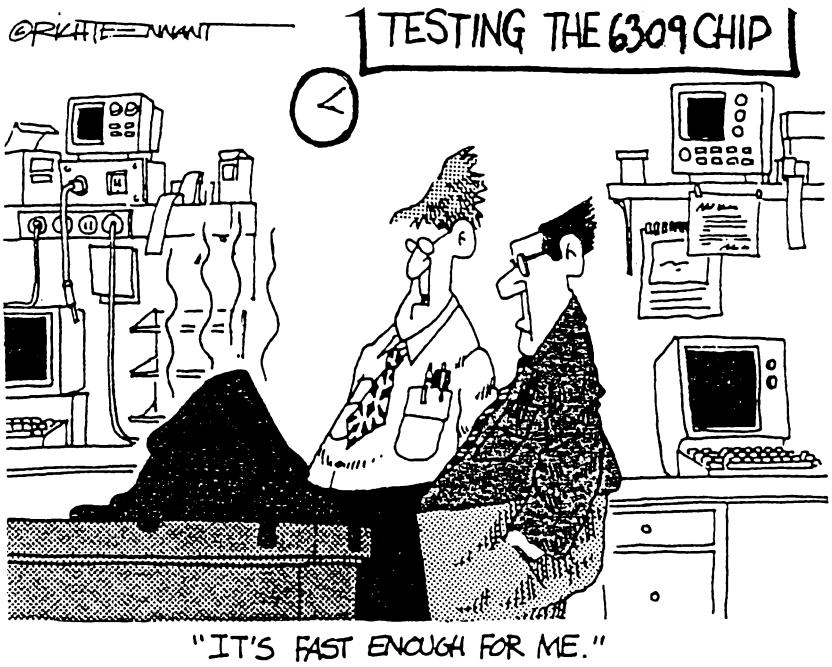
March/April 1993 Vol 1 . No. 2

COCO LINK

The Colour Computer Magazine



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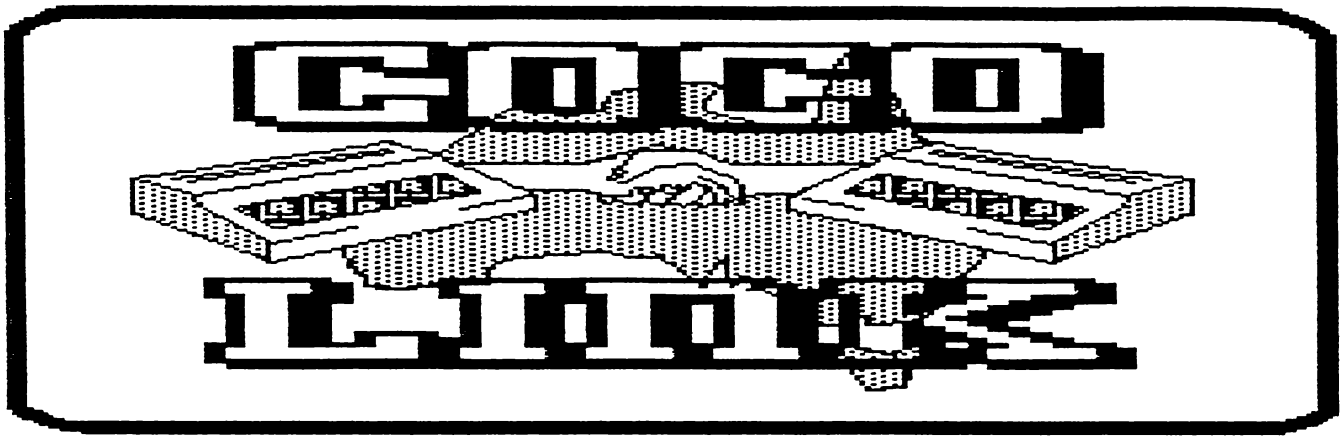

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Remin's Ramblings

THANK YOU!!!

Your response to my first effort at producing this magazine has been gratifying to say the least. I have received phone calls and letters from all over Australia, USA and even Holland giving me a pat on the back. To you all I say thanks, but at the same time I would like to remind you that I am not the one doing all the work, it is you, the CoCo User, subscriber, reviewer and programmer that ensure that this magazine continues.

APOLOGIES!!!

In my haste to produce the first CoCo-Link, and my excuse is that it was my first effort, I made a big boo-boo, I had some prices in the ads in US dollars and some in Australian dollars, rest assured that I have given myself 40 lashes with a frilly necked lizard and that it will not happen again. In this issue all prices are in Australian dollars.

THE SOAP BOX!!!

Some of you may have been wondering as to when you would receive your copy of CoCo-Link, well the reason for the delay has been a learning experience. Naive fool that I was, I had decided that I would take all the magazines to Australia Post on the 15th of the month, lets face it, it is an approved print post magazine, and post them in bulk thinking that this way everyone with the exception of those overseas would get their copy within a few days. However, Australia Post does not work this way. I have subsequently found that although 150 copies of the magazine was a mammoth effort in my eyes, to Aust Post it was a drop in the ocean. As a result some magazines went by air, some by road, some by rail and I think some are still on the way by carrier pigeon. This issue and sebsequent ones will be sent no later than the 15th of the month and in some cases by airmail to ensure that you do get them in a timely fashion.

QUESTION!!!

One question which has been asked a number of times, and I believe may be on your mind as well, is, how long will CoCo-Link last and will I be wasting my $18. COCO-LINK WILL LAST FOR AS LONG AS THERE ARE COCO USERS. As long as you keep asking questions, sending programmes and reviews and resubscribing, this magazine will continue, even if I have to go to a couple of page newsletter, it is my intention to keep us ALL informed.

BBS's

There are two new BBS's that I know of at the moment, one is being run in Sydney and is called, surprise surprise, CoCo-Link, the other will be run by myself here in Queensland and will be called 'FRED's BBS', (not really original but all I could think of at the time). For more information see the article later in this magazine.

Well that's about all I have at the moment for my little soap box article except to say again thank you for your support and keep those programmes, reviews and articles coming. By the way remember to tell your CoCo friends about the magazine, the more subscribers, the better the material and support available.

The Editor
I received the Jan-Feb issue of CoCo-Link and I appreciate the newsy items about what's going on at home and abroad, and things to come.
During recent months I have had to contend with health problems and I have done very little programming. However, you may be able to use LOTOLUCK. The text files on the disk are TW128 saves. In your review of MIND GAMES, you implied an objection to the use of spellings like "color". In fact, this is an acceptable alternative that follows the house rules laid down by Frank Archibald, founder of The Bulletin (c.f. the Australian Labor Party). Any Australian programmer or software producer wishing to break into the United States market would do well to do things their way in regard to spelling and the use of measurements and values.
I congratulate you on your initiative in continuing CoCo-Link and hope that the CoCo community in Australia will rally around you and give you all possible support.
Sincerely
Keiran Kenny

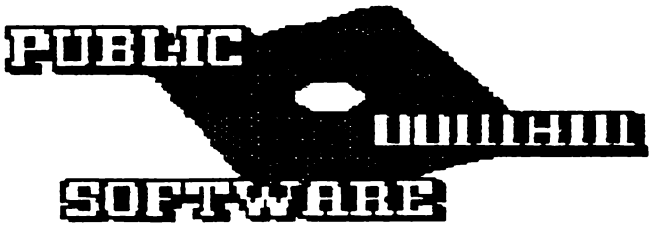
Thank you Keiran for your kind words and more importantly your submission. With respect to the spelling of the word "colour", well maybe I am old fashioned, but I can not see why we should mutilate the english language as it is taught in order to appease those who prefer the lazier phonetic spelling. But that is only my opinion, each to their own. I do hope you have fully recovered from your illness and I hope to receive many more of your fine submissions.
ED

Dear Mr Remin,

RE : COCO-LINK
- Thank you for lifting the "CoCo-Link" out of the near Past, into a living working Product, I believe a lot of CoCo Users will be thanking you for this service.
Yours Sincerely
Simon Hutchinson

Thank you Simon, as I have said in the past and will continue to say, it is you the coco user who ensures that this magazine survives. Your input in the form of programmes, reviews, requests for help, letters and the like are the life blood of this publication.

ED



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Up Yonder by Frank Swygert

THE FOX

News From "Up Yonder"..... (If Australia is "down under" the USA must be "up yonder"!)

We are gearing up for TWO CoCofests, one in Des Moines, Iowa (27-28 March) and another in Elgin, Illinois (right outside Chicago... this is the "Chicago" 'fest, 1-2 May). Both are being hosted by national CoCo clubs: Mid Iowa/Country CoCo of Des Moines (1328 48th, Des Moines, IA 50311) and Glenside CoCo Club of Chicago (c/o George Schneeweiss, RR#2 Box 67, Forrest, IL 61741-9629). Both of these clubs cater to international members also. Write for rates, and tell them where you got the address (and from whom!). I believe the rates are under $25 US. MICC has a newsletter on disk that requires 40 track drives while Glenside prints their newsletter (usually 12 or more pages).

I promised a little about FARNA Systems, so here it is! I started out by writing "CoCo Family Recorder" for my father. It started out as a "conversion" from an MS-DOS GW-BASIC program, but there is no such thing as converting from GW to Color BASIC! GW has more features, so 85% of the code had to be totally rewritten. Since there was no comparable genealogy program for the CoCo, I decided to market it myself, thus was born FARNA Systems.

FARNA is not an acronym... it doesn't stand for anything! It came from a college business English course. A class project was to makeup a business name using our last names. Well, I didn't like that, so used my first (Francis) instead. There are some gas stations by the name of "FINA" over here, and that name always stuck with me due to its oddity. So I used letters from my first name to make up "FARNA", and stated the odd sound as one that people would remember, even if they only remembered "that company with the odd name". Even though I strayed a bit from the rules of the assignment, I got an "A"!

The big project I'm currently working on is not a programming project. Instead, I've been writing a CoCo history and survival guide over the last year. The book will be called "Tandy's Little Wonder - The Color

Computer". It will contain history, hardware information, upgrades, repairs, current vendors, and just about EVERYTHING one would want to know about a CoCo 1, 2, or 3. I even have permission from Tandy to reproduce schematics for the CoCos, the CoCo 3 512K upgrade board, and the Multi-Paks, as well as GIME information. Planned size will be 5.5"x8.5", approximately 160 pages. The book will be worked up with Aldus PageMaker and printed on a laser printer, so expect high quality text. I won't say how much it will be right now as REMCOMS will be the Australian distributor. They will know as soon as they get a copy and check local reproduction costs.

My next attempted programming project will be an 80 column spreadsheet for DECB users. Mind you, I did say ATTEMPTED! Don't count on anything for at least six months, maybe a year. It won't be extremely powerful, but will put a good deal of info on the screen at once, and it will use double speed as does "CoCo Family Recorder".

One won't see a FARNA Systems advertisement in CoCo-Link. The reason is that REMCOMS is the "official" distributor of all FARNA products in Australia. Shortly after anything is released in the US, REMCOMS should be releasing there (given time for shipping and production). I thought this a much better method for us to do business as it keeps shipping costs down, therefore keeping the price to the end user (you!) down a bit.

The other big piece of news in the States is a 2 meg upgrade from DISTO. This upgrade uses two Macintosh type 1MBx8bit SIMMs and plugs into the CoCo 3 512K sockets and a CPU socket. This means that the 68B09E will have to come out and a socket installed, but afterwords there will be no soldering whatsoever. There is a socket for the CPU on the upgrade board, so if you've been thinking about a 6309, now is the time to install that socket! 6809 chips aren't very expensive... at least not here (under $10 US). I would suggest getting another CPU and cutting the old out with fine tip clippers, then heating the leg nubs one by one, pulling out with tweezers or fine needle nose pliers. This prevents damaging the circuit board. The holes can then be easily cleaned with (preferably) a vacuum type "solder sucker" (not the bulb type!) or solder wick. Then simply solder in a socket! This method, termed "destructive removal", is best for the novice to replace ANY chip on the CoCo.

This upgrade may not be such great news to Australians, as I here from Fred that a 5MB upgrade is in the works down there. DISTO only went 2MB as that is all the GIME chip will support without extra circuitry. The DISTO upgrade does run cool, is easy to install (after the CPU is socketed), and is very compact. It isn't real easy to support in DECB, but OS-9 users will certainly be thrilled! I'm waiting to here more about the 5MB board before spilling the beans to DISTO!

Until next time,
the Desert Fox

A MEMO ON THE SECRET FEATURES OF 6309

by Hirotsugu Kakugawa, (kakugawa@csl.hiroshima-u.ac.jp)
Computer Systems Lab., Information Engineering Course,
Graduate School of Engineering, Hiroshima Univ., Japan

1. ** INTRODUCTION **

The CPU 6309 by HITACHI has secret features which are not written in its manual. The purpose of this memo is to introduce them.
The features were originally reported in a magazine, Oh!FM (1988 Apr.), which was written in Japanese. I have not tried all of the features reported in the article, but I'll report the features as far as I know.
HITACHI says in its 6309 manual that the 6309 is compatible with the 6809, but some OS-9 hackers found that it has secret features.

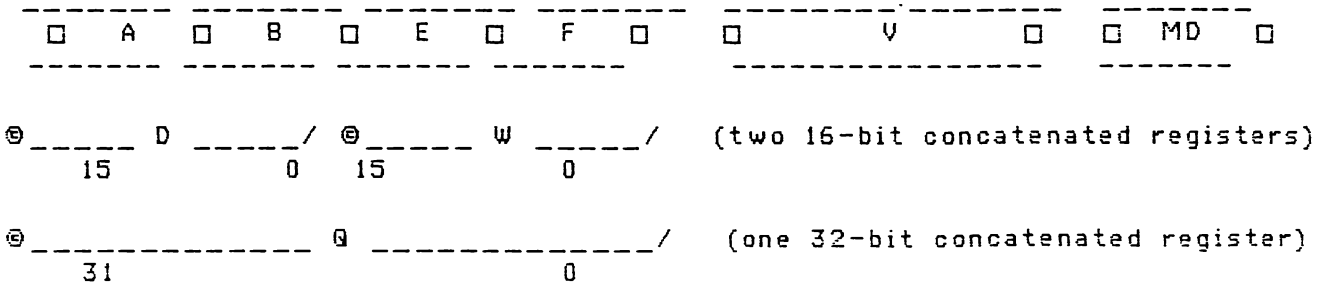
It has the following features:

1. More registers (additional two 8 bit accumulators, 8 bit register, and a 16 bit register),
2. Two modes (6809 emulation mode and native mode),
3. Reduced execution cycles in native mode,
4. More instructions (16 bit x 16 bit multiplication, 32 bit / 16 bit division, inter-registers operation, block transfer, bit manipulating operations which are compatible with the 6801, etc)
5. Error trap of illegal instruction, zero division.

I substituted 6309 for 6809 in my personal computer, and I changed OS9/6809 Level II such that the 6309 executes in native mode.
I had to change the interrupt handling routine in the kernel.
I implemented illegal instruction trap; I was really happy because most bugs are caught by trap handler.
In section 2, new registers are explained. In section 3, two modes of 6309 are explained. In section 4, trapping features of the 6309 are described. In section 5, new instructions are explained. In section 6, the instruction table of the 6309 is shown.

2. ** NEW REGISTERS **

The 6309 has some additional registers which the 6809 doesn't:



1. The E register, the F register

These are 8 bit accumulators. Like the D register is a pair of the A register and the B register, these two registers can be used as a 16 bit accumulator. The pair of the E and the F registers is called the W register.
In addition to that, pair of two 16 bit registers, the D register and the W register, can be used as a 32 bit accumulator called the Q register.

2. The V register

This a 16 bit register can be used only by TFR, inter-register operation, etc. But even if the chip is reseted, contents of this register does not change. Some people may use this register to keep constant value (V for value).

3. The MD register

This is a 8 bit register to keep the mode and status of the chip. The meaning of each bit is as follow.

Read value
- bit 7 --- 1 is set if zero division happen.
- bit 6 --- 1 is set if illegal instruction is fetched.

Write value
- bit 1 --- The mode for FIRQ interrupt.
  - 0 -) the the action for FIRQ is the same as that of 6809.
  - 1 -) the the action for FIRQ is the same as IRQ.
- bit 0 --- The execution mode of 6309.
  - 0 -) the emulation mode.
  - 1 -) the native mode.

(When the chip is reset, all bits are 0.)

3. ** TWO MODES OF THE 6309 **

The 6309 has two modes, emulation mode and native mode, as described in the previous section. When the chip is reset, the initial mode of 6309 is the emulation mode.
When the 6309 is in the emulation mode, the chip emulates the action of the 6809. But we can use extended registers and extended operations in this mode. The 6309 executes instructions in the same number of cycles as the 6809 does.

When the 6309 is in the native mode, it executes instructions in fewer cycles. And when the chip is interrupted (IRQ, for example), it pushes extended registers (PC, U, Y, X, DP, W, D, CC, in this order). If you want to use the 6309, you must rewrite interrupt handling routines (for example, the entry of system call of OS9). (And the multiple system map routines for CoCo GRFDRV - kd)

4. ** TRAPPING **

If either of the following two events happen, a trap is caused.

1. An illegal instruction is fetched.
2. A number is divided by zero.

The action of the 6309 when a trap is caused is :

1. Pushes the registers on the system stack.
   (In the emulation mode, PC, U, Y, X, DP, B, A, CC, in this order and in the the native mode, PC, U, Y, X, DP, W, B, A, CC in this order)
2. Reads the trap vector address ($FFF0) and jumps to the vector.
   (Note that $FFF0 was reserved by 6809.)

To check the reason of the trap, BITMD instruction is provided. This instruction is explained in a later section.

5. ** NEW INSTRUCTIONS **

5.1 The Register Addressing Mode

To specify registers in TFR and EXG, the 6809 uses a 4-bit code pattern. New registers of the 6309 are specified by bit patterns in TFR and EXG operations. In addition to that, the bit pattern is also used in instructions of inter-register operations. We call this bit pattern used to specify registers, the "register addressing mode".

Bit patterns for new registers are as follows:

```
W  -> 0110,    (see 6809 TFR/EXG chart for old register patterns)
V  -> 0111,
E  -> 1110,
F  -> 1111.
```

NOTE: even if the 6309 is in a emulation mode, the action for TFR of 6309 is different from that of the 6809 if new register is specified in operand. Some hackers found this fact and they guessed that the 6309 had secret registers. At last, they found many features.

5.2 Inter-Register Operations

Operations of 6809 are operations between register and immediate value or between register and memory. Therefore, we had to store value of register on memory if operation between two registers was necessary. But the 6309 has inter-register operation. The following operations are provided:

```
ADDR r0,r1  (ADD of two registers),
ADCR r0,r1  (ADC of two registers),
SUBR r0,r1  (SUB of two registers),
SBCR r0,r1  (SBC of two registers),
ANDR r0,r1  (AND of two registers),
ORR  r0,r1  (OR of two registers),
EORR r0,r1  (EOR of two registers),
CMPR r0,r1  (CMP of two registers).
```

The register addressing mode is used to specify two registers.
(I do not remember exactly, but the result is stored in r0, the register of the first operand. Please try and find the behavior of these instructions.)

5.3 Block Transfer

Block transfer instructions are provided such as the Z80 has.
The TFM instruction requires source address and destination address and block size as its argument. One or two 16 bit registers (X/Y/U/S) are used to specify source and destination addresses. Block size to be transfered is specified by the W register. Four styles are provided:

```
TFR r0+,r1+  (transfered in address is increasing order),
TFR r0-,r1-  (transfered in address is decreasing order),
TFR r0+,r1   (poured into the same address, I/O port for instance),
TFR r0,r1+   (read from the same address, I/O port for instance).
```

(Use the old and new bit patterns as in the 6809 TFR/EXG instructions, to specify the block move source and destination registers - kd)

5.4 Multiplication And Division

The 6309 has a MULD instruction which performs a 16bit x 16bit multiplication. We can use various addressing modes (immediate, direct, indexed, extend) The result is stored in the Q register.

Division instructions are also provided. The 6309 has two division instructions: 16bit / 8bit, 32bit / 16bit divisions.
Various addressing modes (immediate, direct, indexed, extend) can be used.

The quotient is stored into the W register; the modulo (remainder) in D.

5.5 Bit Manipulation / Bit Transfer

The 6309 provides AIM, OIM, EIM, TIM instructions which are compatible with instructions of the Hitachi 6301 CPU. Read the manual of the 6301 to understand thses instructions.

Instructions called BAND, BOR, BEOR, BIAND, BIOR, BIEOR, LDBT, STBT are provided. Behavior of thses instructions is that a logical operation is performed for n-th bit of a data in a memory (only direct mode is allowed) and m-th bit of a register, then the result is stored in the register. The format of the object is :

$11, x, (post byte), (operand).

The say that the post byte takes strange format. I do not understand these instructions. Sorry, please try.

5.6 Misc

To change modes ofthe 6309, we have to set the 0th bit of the MD register. To do this, the LDMD instruction is provided:

LDMD #n (where #n is a immediate n bit data)

When trap is caused, it is necessary to examine the reason of the trap. The BITMD instruction can be used for this purpose:

BITMD #n (where #n is a immediate n bit data)

The contents of the MD register and #n is ANDed, and changes the CC register (,maybe, I do not remember exactly).
Once this instruction is executed, the 6th and the 7th bit of the MD register is CLEARED. Therefore, we can't examine the MD register.

Pushing and popping the W registers on/from stack:

PSHSW (Push the W register on the system stack),
PULSW (Pop the W register from the system stack),
PSHUW (Push the W register on the user stack),
PULUW (Pop the W register from the user stack).

6. ** INSTRUCTION TABLES **

In this section, only additional instructions of the 6309 are shown.
How to read the following table :

The first column : + ... New instruction of 6309
(blank) ... a instruction of 6089/6309,

--Op-- Operational code,
--Mnem-- Mnemonic,
--Mode-- Addressing mode,
--Cyc-- Execution Cycles (Parenthesized value is the value in the native mode),
--Len-- Length of the instruction,

6.1 Instructions without pre-byte

	--Op--	--Mnem--	--Mode--	--Cyc--	--Len --
	$00	NEG	DIRECT	6 (5)	2
+	$01	OIM	DIRECT	6	3
+	$02	AIM	DIRECT	6	3
	$03	COM	DIRECT	6 (5)	2
	$04	LSR	DIRECT	6 (5)	2
+	$05	EIM	DIRECT	6	3
	$06	ROR	DIRECT	6 (5)	2
	$07	ASR	DIRECT	6 (5)	2
	$08	ASL/LSL	DIRECT	6 (5)	2
	$09	ROL	DIRECT	6 (5)	2
	$0A	DEC	DIRECT	6 (5)	2
+	$0B	TIM	DIRECT	6	3
	$0C	INC	DIRECT	6 (5)	2
	$0D	TST	DIRECT	6 (4)	2
	$0E	JMP	DIRECT	3 (2)	2
	$0F	CLR	DIRECT	6 (5)	2
	$10	(PREBYTE)			
	$11	(PREBYTE)			
	$12	NOP	IMP	2 (1)	1
	$13	SYNC	IMP	2 (1)	1
+	$14	SEXW	IMP	4	1
	$16	LBRA	REL	5 (4)	3
	$17	LBSR	REL	9 (7)	3
	$19	DAA	IMP	2 (1)	1
	$1A	ORCC	IMMED	3 (2)	2
	$1C	ANDCC	IMMED	3	2
	$1D	SEX	IMP	2 (1)	1
	$1E	EXG	REGIST	8 (5)	2
	$1F	TFR	REGIST	6 (4)	2
	$20	BRA	REL	3	2
	$21	BRN	REL	3	2
	$22	BHI	REL	3	2
	$23	BLS	REL	3	2
	$24	BHS/BCC	REL	3	2
	$25	BLO/BCS	REL	3	2
	$26	BNE	REL	3	2
	$27	BEQ	REL	3	2
	$28	BVC	REL	3	2
	$29	BVS	REL	3	2
	$2A	BPL	REL	3	2
	$2B	BMI	REL	3	2
	$2C	BGE	REL	3	2
	$2D	BLT	REL	3	2
	$2E	BGT	REL	3	2
	$2F	BLE	REL	3	2

	$30	LEAX	REL	4+	2+
	$31	LEAY	REL	4+	2+
	$32	LEAS	REL	4+	2+
	$33	LEAU	REL	4+	2+
	$34	PSHS	REGIST	5+ (4+)	2
	$35	PULS	REGIST	5+ (4+)	2
	$36	PSHU	REGIST	5+ (4+)	2
	$37	PULU	REGIST	5+ (4+)	2
	$39	RTS		5 (4)	1
	$3A	ABX	IMP	3 (1)	1
	$3B	RTI	IMP	6/15 (17)	1
	$3C	CWAI	IMP	22 (20)	2
	$3D	MUL	IMP	11 (10)	1
	$3F	SWI	IMP	19 (21)	1
	$40	NEGA	IMP	2 (1)	1
	$43	COMA	IMP	2 (1)	1
	$44	LSRA	IMP	2 (1)	1
	$46	RORA	IMP	2 (1)	1
	$47	ASRA	IMP	2 (1)	1
	$48	ASLA/LSLA	IMP	2 (1)	1
	$49	ROLA	IMP	2 (1)	1
	$4A	DECA	IMP	2 (1)	1
	$4C	INCA	IMP	2 (1)	1
	$4D	TSTA	IMP	2 (1)	1
	$4F	CLRA	IMP	2 (1)	1
	$50	NEGB	IM P	2 (1)	1
	$53	COMB	IMP	2 (1)	1
	$54	LSRB	IMP	2 (1)	1
	$56	RORB	IMP	2 (1)	1
	$57	ASRB	IMP	2 (1)	1
	$58	ASLB/LSLB	IMP	2 (1)	1
	$59	ROLB	IMP	2 (1)	1
	$5A	ECB	IMP	2 (1)	1
	$5C	NCB	IMP	2 (1)	1
	$5D	STB	IMP	2 (1)	1
	$5F	LRB	IMP	2 (1)	1
	$60	NEG	INDEXD	6+	2+
+	$61	OIM	INDEXD	7+	3+
+	$62	AIM	INDEXD	7	3+
	$63	COM	INDEXD	6+	2+
	$64	LSR	INDEXD	6+	2+
+	$65	EIM	INDEXD	7+	3+
	$66	ROR	INDEXD	6+	2+
	$67	ASR	INDEXD	6+	2+
	$68	ASL/LSL	INDEXD	6+	2+
	$69	ROL	INDEXD	6+	2+
	$6A	DEC	INDEXD	6+	2+
+	$6B	TIM	INDEXD	7+	3+
	$6C	INC	INDEXD	6+	2+

	$6D	TST	INDEXD	6+ (5+)	2+
	$6E	JMP	INDEXD	3+	2+
	$6F	CLR	INDEXD	6+	2+
	$70	NEG	EXTEND	7 (6)	3
+	$71	OIM	EXTEND	7	4
+	$72	AIM	EXTEND	7	4
	$73	COM	EXTEND	7 (6)	3
	$74	LSR	EXTEND	7 (6)	3
+	$75	EIM	EXTEND	7	4
	$76	ROR	EXTEND	7 (6)	3
	$77	ASR	EXTEND	7 (6)	3
	$78	ASL/LSL	EXTEND	7 (6)	3
	$79	ROL	EXTEND	7 (6)	3
	$7A	DEC	EXTEND	7 (6)	3
+	$7B	TIM	EXTEND	5	4
	$7C	INC	EXTEND	7 (6)	3
	$7D	TST	EXTEND	7 (5)	3
	$7E	JMP	EXTEND	4 (3)	3
	$7F	CLR	EXTEND	7 (6)	3
	$80	SUBA	IMMED	2	2
	$81	CMPA	IMMED	2	2
	$82	SBCA	IMMED	2	2
	$83	SUBD	IMMED	4 (3)	3
	$84	ANDA	IMMED	2	2
	$85	BITA	IMMED	2	2
	$86	LDA	IMMED	2	2
	$88	EORA	IMMED	2	2
	$89	ADCA	IMMED	2	2
	$8A	ORA	IMMED	2	2
	$8B	ADDA	IMMED	2	2
	$8C	CMPX	IMMED	4 (3)	3
	$8D	BSR	IMMED	7 (6)	2
	$8E	LDX	IMMED	3	3
	$90	SUBA	DIRECT	4 (3)	2
	$91	CMPA	DIRECT	4 (3)	2
	$92	SBCA	DIRECT	4 (3)	2
	$93	SUBD	DIRECT	6 (4)	3
	$94	ANDA	DIRECT	4 (3)	2
	$95	BITA	DIRECT	4 (3)	2
	$96	LDA	DIRECT	4 (3)	2
	$97	STA	DIRECT	4 (3)	2
	$98	EORA	DIRECT	4 (3)	2
	$99	ADCA	DIRECT	4 (3)	2
	$9A	ORA	DIRECT	4 (3)	2
	$9B	ADDA	DIRECT	4 (3)	2
	$9C	CMPX	DIRECT	6 (4)	2
	$9D	JSR	DIRECT	7 (6)	2
	$9E	LDX	DIRECT	5 (4)	2
	$9F	STX	DIRECT	5 (4)	2

	$A0	SUBA	INDEXD	4+	2+
	$A1	CMPA	INDEXD	4+	2+
	$A2	SBCA	INDEXD	4+	2+
	$A3	SUBD	INDEXD	6+ (5+)	2+
	$A4	ANDA	INDEXD	4+	2+
	$A5	BITA	INDEXD	4+	2+
	$A6	LDA	INDEXD	4+	2+
	$A7	STA	INDEXD	4+	2+
	$A8	EORA	INDEXD	4+	2+
	$A9	ADCA	INDEXD	4+	2+
	$AA	ORA	INDEXD	4+	2+
	$AB	ADDA	INDEXD	4+	2+
	$AC	CMPX	INDEXD	6+ (5+)	2+
	$AD	JSR	INDEXD	7+ (6+)	2+
	$AE	LDX	INDEXD	5+	2+
	$AF	STX	INDEXD	5+	2+
	$B0	SUBA	EXTEND	5 (4)	3
	$B1	CMPA	EXTEND	5 (4)	3
	$B2	SBCA	EXTEND	5 (4)	3
	$B3	SUBD	EXTEND	7 (5)	3
	$B4	ANDA	EXTEND	5 (4)	3
	$B5	BITA	EXTEND	5 (4)	3
	$B6	LDA	EXTEND	5 (4)	3
	$B7	STA	EXTEND	5 (4)	3
	$B8	EORA	EXTEND	5 (4)	3
	$B9	ADCA	EXTEND	5 (4)	3
	$BA	ORA	EXTEND	5 (4)	3
	$BB	ADDA	EXTEND	5 (4)	3
	$BC	CMPX	EXTEND	7 (5)	3
	$BD	JSR	EXTEND	8 (7)	3
	$BE	LDX	EXTEND	6 (5)	3
	$BF	STX	EXTEND	6 (5)	3
	$C0	SUBB	IMMED	2	2
	$C1	CMPB	IMMED	2	2
	$C2	SBCB	IMMED	2	2
	$C3	ADDD	IMMED	4 (3)	3
	$C4	ANDB	IMMED	2	2
	$C5	BITB	IMMED	2	2
	$C6	LDB	IMMED	2	2
	$C8	EORB	IMMED	2	2
	$C9	ADCB	IMMED	2	2
	$CA	ORB	IMMED	2	2
	$CB	ADDB	IMMED	2	2
	$CC	LDD	IMMED	3	3
+	$CD	LDQ	IMMED	5	5
	$CE	LDU	IMMED	3	5
	$D0	SUBB	DIRECT	4 (3)	2
	$D1	CMPB	DIRECT	4 (3)	2
	$D2	SBCB	DIRECT	4 (3)	2

$D3	ADDD	DIRECT	6 (4)	3
$D4	ANDB	DIRECT	4 (3)	2
$D5	BITB	DIRECT	4 (3)	2
$D6	LDB	DIRECT	4 (3)	2
$D7	STB	DIRECT	4 (3)	2
$D8	EORB	DIRECT	4 (3)	2
$D9	ADCB	DIRECT	4 (3)	2
$DA	ORB	DIRECT	4 (3)	2
$DB	ADDB	DIRECT	4 (3)	2
$DC	LDD	DIRECT	5 (4)	2
$DD	STD	DIRECT	5 (4)	2
$DE	LDU	DIRECT	5 (4)	2
$DF	STU	DIRECT	5 (4)	2

CROSSROADS II

Crossroads II is a game of Tic-Tac-Toe with a difference. It has digitized sound produced by a program written by the author which has got to be heard to be believed. The graphics are excellent and the implementation of the different screens bring a completely new concept to an age old game. Crossroads can be played by young and old alike either in the nursery or over a few cold ales on a saturday afternoon. For the younger generation it is a trip down discovery lane, while for the more mature of us, it will do the same but entertain in a way never before experienced.

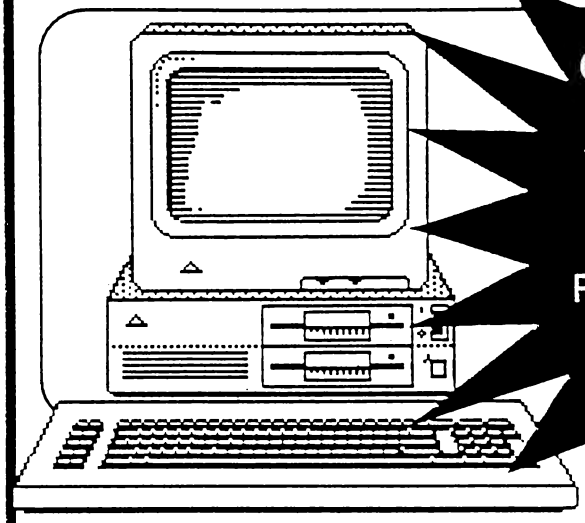
Crossroads was written by an Australian for Australians, (however we will let others in on the game as well, maybe) and as such is a perfect example of the impact we in Australia can make on the CoCo community. For $20 this product is a winner by any stretch of the imagination. It is available through REMCOMS (see ad inside front cover). The more you buy, the more the author will be encouraged produce, I fully recommend this program to any Australian cocoist who enjoys a little bit of good old fun while at the same time encouraging software production.

MIND GAMES

Another Australian product and one well worth the paltry sum of $20. This disk is a combination of a number of oldies but goodies all on one disk incorporating a ram drive for speed of operation. It has been put together by a father and son team, Ted and Aaron Beamish, both of whom are coco fanatics. The games are a joy to play and are made even more enjoyable by the fact you do not have to search through a hundred disks to find them in the first place. Mind Games is available from REMCOMS (see inside front cover).

COCO FRIENDS DISK MAGAZINE

"The most exciting new product for the CoCo Since....?"



COCO FRIENDS DISK MAGAZINE (CFDM) is devoted exclusively to those who still enjoy running under RS Dos. The standard system needed to use CFDM is CoCo 3, RGB monitor, at least one disk drive, and the RS Dos which came with your CoCo 3.

CFDM is a monthly disk based publication which is produced on a "flippie" disk. When you "Run" the "magazine" side of CFDM, you'll be greeted with a beautiful cover picture by CoCo Friend James Gibbons. Pressing any key takes you to the magazine's colorful Main Menu. There you'll find 14 sections which are filled with entries. Sections included are: About CFDM; About this Issue; Active CoCo; Advertisements; CoCo Friends Art Gallery; Articles of the Month; Family Tree; Forum; From the Editor; Letters to the Editor; Potpourri; Programs of the Month; Reviews; and Question & Answers.

Next you will enter a Section and find a number of entries written by our CoCo Friends from all over the world. Each issue of CFDM contains from 60 to 80 entries. Some sections contain documentation about the many programs and graphics found on the "flip-side" of CFDM.

The "flip-side" or "program" side of CFDM is filled with contributions of wonderful programs and graphics from our many CoCo Friends! Each issue has from 2 to 4 hi-res pics and from 8 to 15 never-before-seen programs.

8 to 15 never-before-seen programs

The above software is available in Australia through REMCOMS

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•SINISTAAR•

A 512k CoCo 3 Arcade Game Review written by, Desmond Rae.

Sinistaar requires a 512k CoCo 3 and looks best on an RGB monitor.

Sinistaar is a purely 100 percent written machine language game for the CoCo 3 which uses digitized sounds and voices.

The object of the game is to collect ore which is collected by running in to the ore. The ore firstly has to be mined from asteroids which is done just by firing at the asteroids constantly.

After you have collected enough ore, which is transformed in to sinibombs onboard your spacecraft, you may then attack the evil Sinistaar. But you can only attack the Sinistaar once it has been constructed by the drone ships which are also collecting ore for the Sinistaar.

There are also other craft which fly about chasing you and firing their missiles at you and if your quick enough you can evade the missiles and fire back, otherwise, your in trouble.

The game Sinistaar comes with a double sided page of instructions and game play operations.
To load the game, it is as easy as inserting disk number one and typing LOADM "BOOT", and then inserting disk numbers two and three when they are asked for. The only drawback is that you can not make a back up of the disks which is a bit annoying as I prefer to have a back up of software I have purchased in case a disk gets damaged which can can happen.
I believe it is an excellent game and it has become quite addictive for me to play. Even so, I have only managed a score of about 34,000 and getting to level four, so as you can see, it is a challenging game, but you can make life easier by circling the Sinistaar while it is being made and collect the ore from the drone ships as they take it to the Sinistaar.

So if you have got a lot of spare time and would like to see a top game for the CoCo 3 then I recommend you put this game at the top of your list, which is available from REMCOMS, and APD.

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• THE COCO FAMILY RECORDER •
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The best genealogy program ever devised for the CoCo 3. Available from REMCOMS, see the ad on the inside cover.
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WOULD YOU LIKE TO ADVERTISE IN THIS MAGAZINE???

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THE POWER BOOSTER

Power Boost from Burke and Burke
(some observations made at the Chicago CoCoFest)

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At the Chicago CoCo Fest put on by CoCoPRO! (DAVEMYERS here on Delphi) I had a chance to look at the initial release of Burke and Burke's POWER BOOST. This impressive hardware-software enhancement for CoCo 3's running OS9 depends on patches to OS9 made by Chris Burke that allow OS9 to use the enhanced instruction set of the Hitachi 6309 to speed a number of system operations.

The 6309 and the Burke and Burke Power Boost Software.

The 6309 was made by Hitachi to be an exact instruction for instruction and pin for pin duplicate of the 6809 in low power CMOS technology. Though we don't know for sure at this time, all evidence would indicate that the 6309 is a micro-coded type chip, unlike the original 6809, which was one of the last complex "random logic" ("hard wired") central processor chips made. Hitachi's engineers apparently had a fair amount of space left in the micro-code ROM after meeting Motorola's specs for the chip. They apparently secretly added extra registers and instructions that allow for much faster data transfers, 16 by 16 to 32 bit product multiplications, and more. Burke and Burke's product takes advantage of the enhanced data transfer instructions of the 6309 to greatly speed some common OS9 system operations. Specifically, I observed a MDIR E and a read of a megabyte of data off a Burke and Burke hard drive to be speeded by about 40%. This is a quite visible improvement! In another demonstration, Chris Burke showed how his patched version of OS9 could take about 20 seconds off the time it took to cobble a boot disk. He made the demonstration dramatic by cobbling to a RAM disk, where the cobbler time went from about 22 seconds to about 2 seconds.

The patcher program currently being sold is quite elaborate and professional. As it is installed, it one by one looks for over fifty separate modules of OS9, identifies them, and automatically patches them for use of the 6309. It displays to the user which modules it found to patch and which ones it looked for but could not find or could not patch. The operation of the patcher program is quite "smart" and automatic.

There's a lot more to come, however. Chris Burke has been working on his project for just one month. He currently does not have patches for hard drive software drivers other than his own that go with the Burke and Burke CoCo XT. However, he hopes to have out patches for other hard drive systems that use SCSI and SCSI-like host adaptors, such

as Disto and Kenton / RGB. He is also working on patches to the OS9 assembler, as I understand it.

Additionally, Chris' current patches make use ONLY of the extra instructions that one has acess to in the 6809 emulation mode of the 6309. It is Chris Burke's hope to soon have out improved patches that not only deal with more modules, but also take advantage of the native 6309 mode of the 6309, in which even ordinary 6809 instructions are executed in fewer machine cycles, and therefore more quickly. Chris reports that in his preliminary testing, utilizing this mode should add roughly an extra 15% speed increase over the speed increase he already has achieved. Chris' conservative estimation is that he may achieve an avarage speed increase in many situations of around 50% over a CoCo 3 running ordinary OS9 on a 6809 once all his planned patches are completed. There's no need to wait to buy the Power Boost, for Burke and Burke will have a very generous upgrade policy when new patches are available.

The Hardware Hurdle

The biggest hurdle in installing the Power Boost product is that one must remove the SOLDERED IN 68B09E chip from one's CoCo 3 and replace it with a socket in which one can insert the 63B09E that Burke and Burke supplies with the Power Boost package. This requires one skilled in repair of printed circuit boards, or at least able to do a competent "destructive removal" of the old chip. Destructive removal (a technique I have described several times in the past in my CoCo Consultations column in Rainbow, and which I expect to be described in detail again in an umcoming Rainbow article on the Power Boost product) is sufficiently easy to learn that anyone who has a fine soldering iron, a fine needle nosed pliers, a fine diagonal cutting pliers, and a decent solder sucker should be ablle to complete the task. But it does take time, patience, and skill with soldering equipment.

Owners of 1 meg upgrades will have to be a bit MORE skillful and creative in installing the Power Boost product. They will have to desolder their "CPU board" from the existing 68B09E chip, then either solder it to the 6309 chip and add extra pin extentions to the 6309 so it will go into the socket they install on the CoCo, OR (and this is what I recommend) they will have to make up a clever satellite board that lies under the main 1 meg upgrade CPU board and permits the 6309 to be put into a socket on that extra board. The CPU board would be "up on stilts" above this extra board, and the extra board will have pins below that allow it to be plugged into the socket that is installed into the CoCo 3. Such extra little boards would be most professionally made using flush mount machine pin pin strips, tho they can be finagled with the less esoteric and more common ordinary machine pin sockets and pin strips.

Chris Burke actually did do a little bit of experimenting with Disk Basic and the 6309. However, given the fact that most RS DOS based software spends very little time using RS DOS code, patches to Disk Extended BASIC will be of little value. Chris notes that if a CoCo 3 running RS DOS with a 6309 is put into 6309 mode, execution is speeded by about 15%, but printer baud rate will be thrown off and disk I/O will cease to work reliably due to changes in certain critical delays and timing loops. He noted that the ultra fast data move instructions of the 6309 could be used to speed up considerably the graphics commands in Disk Basic, and even provided a few patches that do speed BASIC a little, but not dramatically.

I hope this article contributes to the understanding of just what Power Boost is and can do. Chris Burke occasionally drops by Delphi OS9 and CoCo SIGs under user name CoCoXT, and may be available to answer further questions here from time to time.

---marty

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SUBMISSIONS WHAT AND HOW

What do you send to CoCo-Link and how?

Well anything to do with the CoCo or of interest to CoCo users is what we are after, from programs to articles to reviews on your favourite game, word processor or utility.
How do you send it, well there are a number of ways.

1. Send it on disk with at least two saves and one of these being in ASCII format. Ensure that you also send a text file using any word processor giving some information about your program etc. If you do not have a word processor then a neatly hand written letter will do, but remember I am not a chemist so it must be legible.

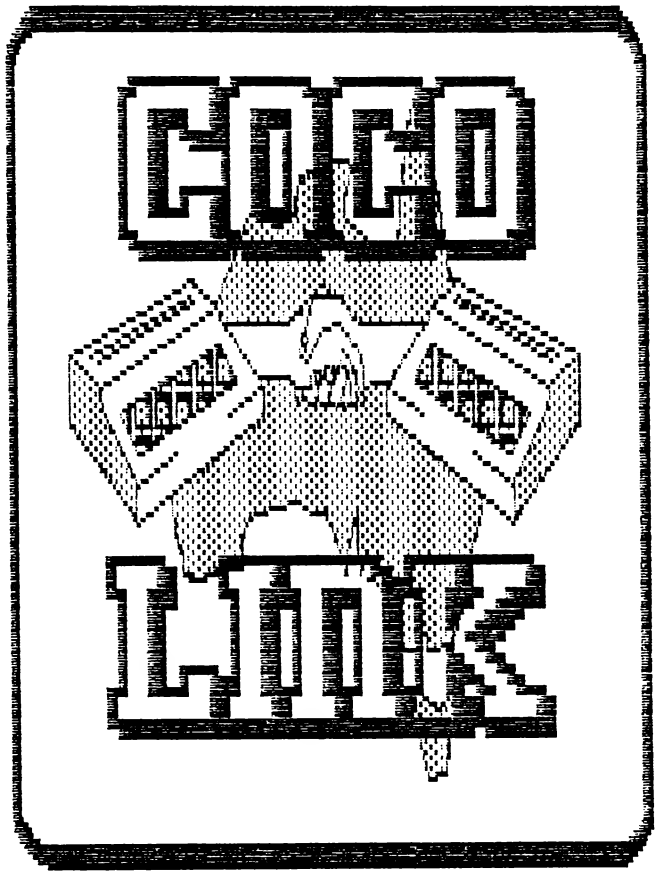
2. Send it using the same system as for a disk but on a tape.

Some of the wordprocessors I have available to me include;
Window Writer (OS9),
Simply Better,
VIP Writer,
Word Power 3.3
Max 10,
Desk Mate 3, and
Home Publisher.

If you are sending a program please ensure that you have tested it to make sure it works, I simply do not have time to debug your program.

If you do NOT wish to have your creation submitted to the Public Domain Library then please let me know, otherwise I will send it on to Robbie for perusal.

ABOVE ALL REMEMBER that without your submissions, this magazine will fold, so help me to help you and send in your creations so that COCO LIVES!



COLOUR POKE by Ted Bearnish

```
0 '  #                          #
1 '# # # # # # # # # # # # # # # #
2 '  #                          #
3 '  # GUNGADIN SOFTWARE (C)  #
4 '  #                          #
5 '  #      colour poke         #
6 '  #                          #
7 '  #     JANUARY  1993        #
8 '  #                          #
9 '# # # # # # # # # # # # # # # #
10 ' #                          #
11 '
12 DEF FNM(X) =X-INT(X/64)*64
13 WIDTH32
14 FG=37:BG=52:CLS
15 PRINT@5,"COLOUR POKE DISPLAY"
16 PRINT@32,"       gungadin software
(C)"
17 POKE&HFFBC,FG
18 PRINT@104,"POKE&HFFBC,";FG
19 POKE&HFFBD,BG
20 PRINT@136,"POKE&HFFBD,";BG
21 PRINT@192,"tap arrow keys to
change colours"
22 PRINT@229,"64 BACKGROUND
COLOURS";:PRINT@271,"x";:PRINT@295,"
64 FOREGROUND COLOURS":PRINT@322,"
= 4096 COLOUR COMBINATIONS"
23PRINT@387,"abcdefghijklmnopqrstuv
wxyz"
24PRINT@451,"ABCDEFGHIJKLMNOPQRST
UVWXYZ"
25 PRINT@491,"1234567890";
26 A$=INKEY$:IF A$="" THEN 26
27 IF A$=CHR$(94) THEN
FG=FNM(FG+1) ELSE IF A$=CHR$(10)
THEN FG=FNM(FG-1) ELSE IF
A$=CHR$(9) THEN BG=FNM(BG+1) ELSE
IF A$=CHR$(8) THEN BG=FNM(BG-1)
28 GOTO17
```

****

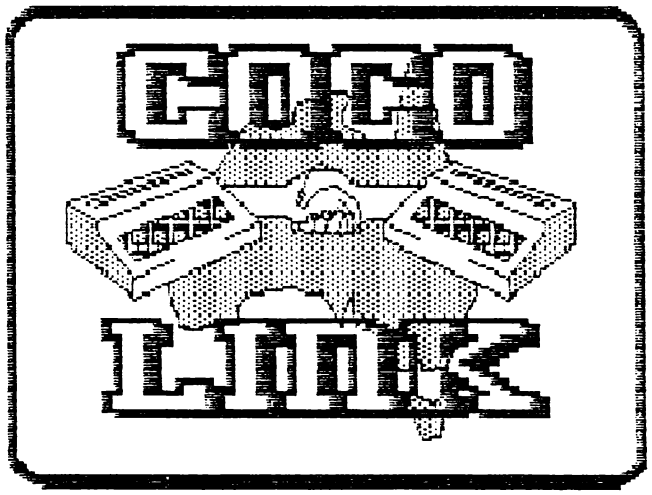
DID YOU KNOW?

The digitiser from Nicholas Marentes is still available, not only that but it has been enhanced to be able to print the digitised pictures with CoCo Max III in true colour. For more information see the ad elswhere in this magazine and the REMCOMS ad on the inside cover.

****

Do you want more information about OS9? Then join the National OS9 User Group, ring :
Gordon Bentzen: (07) 344-3881,
Bob Devries : (07) 372-7816, or
Don Berrie : (07) 375-1284.

****



****

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Coco Tools is a comprehensive set of disk utilities, providing the most complete set of functions available for the standard R.S. DOS disk system. Comparable in scope and functionality to that of the famous utility available for MS-DOS computers "PC-TOOLS"!

Coco Tools provides fast and easy operation of standard commands like Copy, Rename, Kill, Disk Initialize and Directory thru a consistent and easy to use interface. It provides easy visual selection of files, so multiple file operations can be carried out with very few keystrokes.

Coco Tools is also the most Comprehensive Disk Repair program available, it Automatically diagnosis and repairs file allocation errors, locates corrupt directory information and cross linked files. It provides fast and easy recovery of deleted files without the drudgery normally associated with killed file recovery. It also does lightning fast disk I/O for fast Backup and Copying at speeds you thought only higher priced computers could perform. Coco Tools has multi-file Arciving, Un-Arciving and Test Arciving functions plus the ability to extract any selected group or individual files from a compressed file with easy visual file selection. And allows customizing of display colors, printer/Serial baud rate, Drive step rates and Directory sorting preference. Coco Tools requires a 128K CoCo III, 1 Disk drive and an 80 column display

The above software is available in Australia through REMCOMS

Cer-Comp Ltd.
5566 Ricochet Avenue
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702-452-0632

LOTOLUCK BY KEIRAN KENNY

*Lotto Number Picker and Checker
*(16K Disk/Tape)
*by Keiran Kenny

For picking lotto numbers, computer programs are no better than any other method , but they can take some of the strain out of this important weekly ritual if, like me, you are one of those ditherers who hate making decisions like whether to scratch a six or a seven. This program will pick your numbers for the widely-used system, six out of forty-four numbers with two supplementary numbers as used in New South Wales.

Take option 1 on the title screen and enter the number of tries you want to take on your lotto card. Lines 140 to 250 pick six random numbers. Scratch them on your card and press any key for the next six and so on.

You then get a prompt to save your lotto numbers as a file. Enter a filename, e.g. "10-93" for lotto No. 10 of 1993. If you have a disk drive plugged in, your file will be saved to disk, otherwise to tape. Line 20 sets the value DV=1 if you are using a disk drive, or DV=-1 if you are using a tape recorder.

When the lotto numbers are drawn, note them down and load LOTOLUCK. Take option 2 on the menu screen and follow the prompt to load the appropriate lotto number file. Then enter the six numbers drawn and the two supplementary numbers. Your results, try by try, will be displayed on the screen and I hope they will be better than mine so far.

The program name, LOTOLUCK, is a wish, not a promise.

```
0 'LOTOLUCK'
1 'COPYRIGHT KEIRAN KENNY, THE
HAGUE, 1993
2 'WRITTEN FOR COCO-LINK COLOR
COMPUTER MAGAZINE
10 CLS:CLEAR500
20 IF PEEK(&H15F)=196THEN DV=1ELSE
 DV=-1
30 IF PEEK(33021)=50THEN
SP=65497:SL=65496ELSE
SP=65495:SL=65494
40 POKESP,0
50 DIMA(44),E$(6,12)
60 PRINT@131,"CHOICE:"
70 PRINT:PRINTTAB(5)"1 SELECT LOTTO
NO'S;
80 PRINT:PRINTTAB(5)"2 CHECK YOUR
LOTTO CARD"
90 PRINT:PRINTTAB(7)"";:INPUTC
100 IFC<1ORC>2THEN60
110 IFC=1THEN140
120 IFC=2THEN400
130 GOTO130
140 CLS
150 PRINTTAB(4)"HOW MANY
TRIES";:INPUTTR
160 FORY=1TOTR
170 FORI=1TO44:A(I)=I:NEXT
180 CLS:PRINT@75,"TRY
*"Y:PRINT@134,"LOTSA LOTTO
LUCK!":PRINT:PRINTTAB(6):FORX=1TO6
190 R=INT(RND(-TIMER)*44)+1
200 IFA(R)=0THEN190
210 E$(X,Y)=STR$(R)
220 PRINTE$(X,Y);
230 A(R)=0
240 NEXT
250 IFY=TR THEN280
260 PRINT@264,"PRESS ANY KEY."
270 EXEC44539:CLS:NEXTY
280 PRINT@262,TR"TRIES
COMPLETE.":PRINT:PRINTTAB(8)"PRESS
```

```
ANY KEY":EXEC44539
290 POKESL,0:CLS:PRINT@192,"ENTER A
FILENAME AND SAVE YOUR  LOTTO
NUMBERS:";:INPUTFL$
300 IFDV=-1THENCLS:PRINT"POSITION
TAPE. PRESS PLAY AND   RECORD.
PRESS ANY KEY.":EXEC44539
310 PRINT:PRINT"SAVING FILE
"+CHR$(34)+FL$+CHR$(34)
320 OPEN"O",#DV,FL$
330 PRINT#DV,TR
340 FORY=1TOTR
350 FORX=1TO6
360 PRINT#DV,E$(X,Y)
370 NEXTX,Y
380 CLOSE#DV
390 END
400 CLS
410 POKESL,0:PRINT@192,"ENTER YOUR
LOTTO FILENAME";:INPUTFL$
420 IFDV=-1THENPRINT"POSITION TAPE.
PRESS PLAY. PRESSANY KEY.":EXEC44539
430 PRINT"LOADING FILE
"+CHR$(34)+FL$+CHR$(34)
440 OPEN"I",#DV,FL$
450 INPUT#DV,TR
460 FORY=1TOTR
470 FORX=1TO6
480 INPUT#DV,E$(X,Y)
490 NEXTX,Y:CLOSE#DV
500 CLS:PRINT@96,"INPUT LOTTO DRAW
NUMBERS:"
510 PP=204:FORT=1TO8
520 IF T=7OR T=8THEN
PRINT@PP-2,"SUPP."+STR$(T-6)+":";ELS
E PRINT@PP,T;CHR$(8)":";
530 INPUTA$(T)
540 IF VAL(A$(T))<1OR VAL(A$(T))>44
THEN PRINT@PP-2,"":GOTO520
550 PP=PP+32:NEXT
560 POKESP,0:CLS
570 P=5:B=P
580 FOR Y=1TO TR:PRINT@ B-5,
"TR"Y;CHR$(8);":"
590 FORX=1TO6:PRINT@P+1,E$(X,Y)
600 FORT=1TO8
610 IFT=7ANDA$(T)=E$(X,Y)THENS$=" +
SUPP(S) *":PRINT@P+33,"*":SP=1
620 IFT=8ANDA$(T)=E$(X,Y)THENS$=" +
SUPP(S) *":PRINT@P+33,"*":SP=1
630IFT<7ANDA$(T)=E$(X,Y)THENRT=RT+1:
PRINT@P+33,"^"
640 NEXTT
650 P=P+3:NEXTX
660 PRINT@B+64,"";
670 IFSP=1ANDRT=0THENR$="SUPP(S) *
ONLY":GOTO690ELSEIFRT=0THENR$="NONE
GOOD":GOTO690
680 R$=STR$(RT)+" GOOD ^"+S$
690 PRINTR$
700 B=B+96:IFY/4=INT(Y/4)THEN
PRINT:PRINTTAB(6)"PRESS ANY
KEY.":B=5:EXEC44539:CLS
710 SP=0:P=B:RT=0:S$="":NEXTY
720 PRINT@483,"CHECK END. PRESS ANY
KEY";
730 EXEC44539:CLS:K$=INKEY$
740 PRINT@64,"CONGRATULATIONS OR
BETTER LUCK  NEXT TIME (AS THE CASE
MAY BE). TO CHECK YOUR RESULT AGAIN
JUST PRESS <C>. TO <END> PRESS ANY
 OTHER KEY."
750 K$=INKEY$:IFK$=""THEN750
760 IFK$="C"THENCLS:GOTO560ELSE
POKESL,0:CLS:END
```

GAMES HINTS BY D.RAE

A (partial) Solution to King's Quest III The manual is required for solution.

There are many random factors in this game. Some of these are as follows :

Cat's presence. Your success in taking the cat. Robbers' presence. Acorn availability. Eagle presence (and especially the dropped feather). Movement in tree house. Captain's presence. Pirate's presence. Rats' presence. Availability of porridge. Birds' & Animals' dialogue etc.

NOTE : The first task given to you by the wizard MUST be completed within 3 minutes (eg. Empty chamber pot or feed chickens). This game must be played in alternate 5 and 25 minute stages (approximately) ie. the wizard will be in the vicinity for about 5 minutes (and able to check on you) and will then be gone or asleep for about 25 minutes. You must NOT be caught carrying anything that can be used for a spell (identified by "$") while the wizard is in the vicinity.

Go East. "Take cup" (1 point). Go North. "Take broom" if your assigned task is sweeping. "Take food" (3), "take bowl" from shelf (1), "take knife" (1) and "take spoon" (1).

Go S, W then upstairs to second level. Wait for wizard to leave at approx. 0:05:00. Go upstairs and "take fly" (1). Go down stairs and through door to the North. "Open drawer" to get the mirror (1), "open closet" and "move robe" to get the magic map (7). "Close closet" then "feel on closet" to find the key (3). "Open drawer" to get the essence (1).

NOTE : When possible, "take cat". You may have to try this a number of times. When you have the cat, "take fur" (1).

Go South, down the stairs and South again. Go behind the chicken fence and "feed chickens". "Open gate" and "take chicken". "Take feather" (1), "open gate" and go down mountain path to Llewdor.

NOTE : Whenever you see the eagle, watch for a feather to drop. If this happens, "take feather" (2).

Go 2 screens West, turn North IMMEDIATELY and stop. When Medusa is close to you, "show mirror to medusa" (5). Go North and "take snake skin" (1). Go 2 screens North and "take cactus" (1). Go East and "take acorns" (1) if possible. This may have to be attempted a number of times throughout the game.

NOTE : If you are robbed at any time by two thieves, don't worry - the following move will get your stuff back. "Reach in hole" (3) then climb ladder (2). Stop next to platform and "look in house". If somebody is moving about, go down and try again until there is no movement ie. there is a sleeping figure in the chair. Enter the house.

ONLY IF YOU HAVE BEEN ROBBED : "Open bin", "look in bin", "take all" and "close bin".

"Take purse" (4) then climb down ladder and move 2 screens West. "Open door" of store and "pat dog" to get the dog hair (1). "Look at shelves" then "buy pouch" (1), "buy salt" (1), "buy lard" (1) and "buy fish oil" (1). Go E, N and "take mud" (1). Go E, N and walk into ocean. "Take

water" (1). Go W, N and "take mistletoe" (1).

Go West and "open door". You may have to repeat this a number of times until bears are not home and porridge is available. "Take porridge" (2) and go upstairs. "Open drawer" and "take thimble" (1). "Close drawer", go downstairs and exit South. "Look at flowers" and "take dew" (1). Go 2 screens North and retrace your path up the mountain.

Go to your (Gwydion's) bedroom (East on the second level) and "hide all" (4) then "take bread". Everything with an asterisk (*) MUST be hidden before wizard's return at approx. 0:30:00. Go to kitchen and wait for wizard. When he arrives, go South and "give bread to wizard". Waste time for approx. 5 minutes until wizard goes to sleep.

Go to your bedroom and "take all". Go to the wizard's study (door to the North of the front door) and "unlock cabinet" to get the wand (4). Go to bookshelf on the right. "Move book", "pull lever" (5) and go down stairs.

WARNING : Don't walk past cat (either up or down) if it is on stairs. Go to a different screen and return until cat is not there.

"Look around" and "look at shelves". "Take fish bone" (1), "take juice" (1), "take mandrake root powder" (1), "take saffron" (1), "take spittle" (1) and "take toadstool powder" (1). "Read book" then "turn to page II". Complete spell (10). Go upstairs (remembering not to pass cat on stairs) and "push lever". "Move book" and "open cabinet" to return wand. "Look at map" then teleport to Llewdor.

Remember to watch for the eagle feather if you haven't already got it. Walk around and listen to animals, birds, fish and lizards for clues about the rest of the game. Remember that the map will only display the areas you have been to. Return to your bedroom and "hide all" before the wizard wakes at approx. 1:00:00. Waste time until wizard leaves at approx. 1:05:00.

Go to your bedroom and "take all". Go to the wizard's study and "unlock cabinet" to get wand (4). Go down to the laboratory again and complete the other six spells (60). "Put cookie in porridge" and go upstairs. Return wand to cabinet, close trapdoor and hide lever again.

"Look at map" and teleport to cave entry. "Dip eagle feather in essence" (4) and fly near spider which you will grab and drop at sea. Go North into cave where you will be given an amber stone (3).

Exit to the South and return to mountain top. "Hide all" in your bedroom and "take porridge". Wait in kitchen for wizard's return at approx. 1:30:00.

Go into dining room and "give porridge to wizard" (12). This effectively takes the wizard out of the game and it's now time for you to leave Llewdor. Go to your bedroom and "take all". "Look at map" and teleport to the tavern.

At this point you could go back to the tree house and go through the routine of getting the gold coins again. This would replenish your supply of coins and you will gain

more points. I only tried this one extra time, so I don't know if you are supposed to do it to get the maximum score, or whether it's a fault in the game.

"Open door" and "talk to captain". "Give purse to captain" (3) and go S, E, E, N (2). Go East and "take crate". (Rats appear here at random. Their dialogue will provide a clue to the location of the buried treasure.) Go West and "drop crate" near large crate.

"Jump on crate", "jump on crate" then "jump". Climb up (2). (Captain may be in chair or may appear from left.) Go East (pirate appears at random) and "look around". "Take shovel" (1) and go 2 screens West. "Open chest", "look in chest" and "take all" to retrieve your belongings (3).

Go East and wait for the announcement of LAND HO! Wait for DROP ANCHOR and then climb up ladder to deck. Go down to lower deck and move East. Walk off side of ship and swim East to the shore (5). You'll have to hurry to avoid the shark.

Go E, N, S then go to Southern side of tree. Walk 5 paces East and "dig" to get the treasure (7). I had to try this a zillion times before I was successful. The treasure seems to be available only at random.

You must now climb to a confrontation with the Abominable Snowman. I went through the moves in travelling the path and climbing to the top just for fun, but it's easier to "Dip eagle feather in essence" and fly West then up until you reach a flat plateau. Fly around until the Abominable Snowman leaves then "eagle begone myself return".

Move down the left fork of the path (4) and you will find yourself on a sheer face. (You should save games regularly while in this area.) Climb carefully down to the first ledge and go North into the cave. These caves form a maze so watch your exit point carefully.

Travel East to exit and climb down to ledge. Go East into cave and West to the exit. Climb up to ledge and move East into cave. Move East to the exit and follow path to the East. Travel E, S until you slip. Go East into cave.

Go up stairs to the top and then West. "Rub ointment on body" and move West. "Stir brew with finger" then "brew of storms churn it up" which will kill the dragon (7). "Untie girl" (3) who is really your twin sister and move 2 screens East.

Go down the stairs to the bottom and move West. "Talk to girl" several times then go 2 screens North (4) for the family reunion and the end of your quest.
This should give you a score of 202 of a possible 210.

MAGIC SPELLS ----------

PAGE II : UNDERSTANDING THE LANGUAGE OF CREATURES

INGREDIENTS :
ONE SMALL FEATHER FROM A BIRD
ONE TUFT OF FUR FROM ANY ANIMAL
ONE DRIED REPTILE SKIN
ONE ROUNDED SPOONFUL OF POWERDED FISH BONE
ONE THIMBLE FULL OF DEW
ONE MAGIC WAND

DIRECTIONS :
PUT THE SMALL FEATHER IN A BOWL
PUT THE FUR IN THE BOWL
PUT THE REPTILE SKIN IN THE BOWL
ADD A SPOONFUL OF POWDERED FISH BONE PUT THE THIMBLE FULL OF DEW IN THE BOWL MIX WITH HANDS (MIXTURE WILL BE DOUGHY) SEPERATE MIXTURE INTO TWO PIECES
PUT DOUGH PIECES INTO YOUR EARS

RECITE :
FEATHER OF FOWL AND BONE OF FISH
MOLDED TOGETHER IN THIS DISH
GIVE ME WISDOM TO UNDERSTAND
CREATURES OF AIR SEA AND LAND

WAVE THE MAGIC WAND

YOU WILL NOW BE ABLE TO UNDERSTAND THE SPEECH OF ANIMALS, BIRDS AND FISH. YOU WILL NOT, HOWEVER, BE ABLE TO SPEAK TO THEM. THE SPELL WILL LAST AS LONG AS THE DOUGH IS IN YOUR EARS.

PAGE IV : FLYING LIKE AN EAGLE OR A FLY
INGREDIENTS :
ONE TAIL FEATHER OF ANY EAGLE (TO FLY LIKE AN EAGLE)
ONE PAIR OF FLY WINGS (TO BECOME A FLY)
ONE PINCH OF SAFFRON
ROSE PETAL ESSENCE
ONE MAGIC WAND

DIRECTIONS :
PUT A PINCH OF SAFFRON IN ESSENCE
RECITE :
OH WINGED SPIRITS SET ME FREE OF EARTHLY BINDINGS JUST LIKE THEE IN THIS ESSENCE BEHOLD THE MIGHT TO GRANT THE PRECIOUS GIFT OF FLIGHT

WAVE THE MAGIC WAND

YOU NOW HAVE A POTION WHICH WILL ALLOW YOU TO CAST THE TRANSFORMATION SPELL. TO CAST THE SPELL ANY TIME LATER:

DIP THE EAGLE FEATHER IN THE ESSENCE (IF YOU WANT TO BECOME AN EAGLE) OR DIP THE FLY WINGS IN THE ESSENCE (IF YOU WANT TO BECOME A FLY). YOU WILL TURN INTO AN EAGLE OR A FLY. IF YOU DO NOT TRANSFORM BACK INTO YOURSELF BY SAYING "EAGLE (OR FLY) BEGONE MYSELF RETURN", THE SPELL WILL WEAR OFF AFTER SOME TIME HAS PASSED.

YOU CAN USE THIS SPELL UNTIL YOUR ROSE PETAL/SAFFRON POTION IS GONE.

PAGE VII : TELEPORTATION AT RANDOM
INGREDIENTS :
ONE SPOONFUL OF SALT GRAINS
ONE SPRIG OF DRIED MISTLETOE
ONE SMOOTH ROUNDED STONE OF UNUSUAL COLOUR
ONE MAGIC WAND

DIRECTIONS :
GRIND A SPOONFUL SALT IN A MORTAR (WITH A PESTLE)
GRIND THE MISTLETOE IN THE MORTAR

RUB THE STONE IN THE MIXTURE
KISS THE STONE
RECITE :
WITH THIS KISS I THEE IMPART
POWER MOST DEAR TO MY HEART
TAKE ME NOW FROM THIS PLACE HITHER
TO ANOTHER PLACE FAR THITHER
WAVE MAGIC WAND

YOU NOW OWN A CHARM WHICH WILL ALLOW YOU TO CAST THE RANDOM TELEPORTATION SPELL. TO CAST THE SPELL, RUB THE STONE. IT WILL INSTANTLY WHISK YOU AWAY FROM WHERE YOU ARE. REMAIN ALERT, HOWEVER. EVEN THOUGH YOU USE THE

SPELL TO RUN AWAY FROM DANGER, NOTHING GUARANTEES THAT YOU WILL NOT ARRIVE IN A MORE PRECARIOUS SITUATION THAN THE ONE YOU LEFT. THE POWER OF THE CHARM REMAINS FOR AS LONG AS YOU CAN RETAIN THE STONE.

PAGE XIV : CAUSING A DEEP SLEEP
INGREDIENTS :
THREE DRIED ACORNS
1 CUP NIGHTSHADE JUICE
EMPTY POUCH
MAGIC WAND
DIRECTIONS
GRIND THE ACORNS IN A MORTAR [WITH A PESTLE]
PUT THE ACORN POWDER IN A BOWL
PUT THE NIGHTSHADE JUICE IN THE BOWL STIR THE MIXTURE WITH A SPOON
LIGHT A CHARCOAL BRAZIER
HEAT THE MIXTURE ON THE BRAZIER [BOIL THE MIXTURE UNTIL THE NIGHSHADE JUICE IS ALMOST GONE, THEN REMOVE FROM HEAT] SPREAD THE MIXTURE ON A TABLE [WAIT UNTIL DRY]

RECITE :
ACORN POWDER GROUND SO FINE
NIGHTSHADE JUICE LIKE BITTER WINE

SILENTLY IN DARKNESS YOU CREEP
TO BRING A SOPORIFIC SLEEP

WAVE THE MAGIC WAND
PUT THE SLEEP POWDER IN THE POUCH [FOR SAFEKEEPING]

YOU HAVE NOW MIXED A POWDER FOR CASTING A SLEEP SPELL OVER WHOEVER IS NEARBY. TO CAST THE SPELL, POUR THE SLEEP POWDER ON THE GROUND (OR FLOOR) IN A DANK, DARK PLACE THEN RECITE "SLUMBER HENCEFORTH"

PAGE XXV : TRANSFORMING ANOTHER INTO A CAT

INGREDIENTS :
1/2 CUP MANDRAKE ROOT POWDER
1 SMALL BALL OF CAT HAIR
2 SPOONFULS OF FISH OIL
MAGIC WAND

DIRECTIONS :
PUT MANDRAKE ROOT POWDER IN A BOWL PUT THE CAT HAIR IN THE BOWL

PUT 2 SPOONS OF FISH OIL IN BOWL
STIR THE MIXTURE WITH A SPOON [DOUGH WILL BE OILY]
PUT THE DOUGH ON THE TABLE
PAT THE DOUGH INTO A COOKIE [LET HARDEN ON TABLE]
RECITE :
MANDRAKE ROOT AND HAIR OF CAT
MIX OIL OF FISH AND GIVE A PAT
A FELINE FROM THE ONE WHO EATS
THIS APPETIZING MAGIC TREAT

WAVE THE MAGIC WAND

YOU HAVE JUST CREATED A COOKIE THAT, WHEN EATEN, WILL TURN THE VICTIM INTO A CAT FOREVER!

PAGE LXXXIV : BREWING A STORM
INGREDIENTS :
1 CUP OF OCEAN WATER
1 SPOONFUL OF MUD
1 PINCH OF TOADSTOOL POWDER
1 EMPTY JAR
MAGIC WAND

DIRECTIONS :
PUT A CUP OF OCEAN WATER IN BOWL
LIGHT A CHARCOAL BRAZIER
HEAT THE BOWL ON THE BRAZIER [HEAT SLOWLY, BUT NOT TO BOILING, THEN REMOVE FROM HEAT]
PUT A SPOON OF MUD IN THE BOWL
ADD A PINCH OF TOADSTOOL POWDER
BLOW INTO THE HOT BREW

RECITE :
ELEMENTS FROM THE EARTH AND SEA
COMBINE TO SET THE HEAVENS FREE
WHEN I STIR THIS MAGIC BREW
GREAT GOD THOR I CALL ON YOU

WAVE THE MAGIC WAND
POUR THE STORM BREW INTO THE JAR

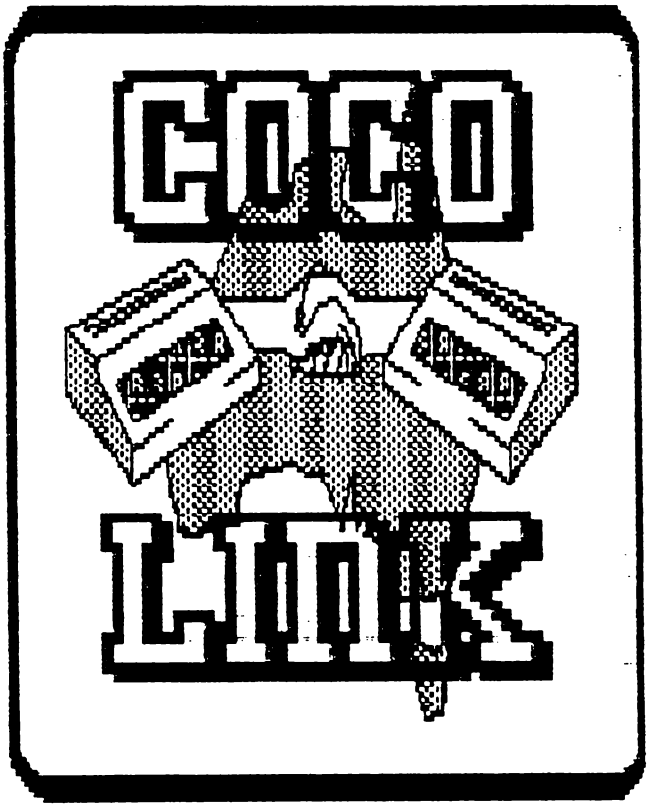
YOU HAVE MIXED A POTION THAT YOU CAN USE TO BREW A STORM. TO ACTIVATE THE SPELL, STIR THE STORM BREW WITH YOUR FINGER AND RECITE "BREW OF STORMS CHURN IT UP" OUTDOORS, A RAINSTORM COMPLETE WITH THUNDER AND LIGHTNING WILL OCCUR. IT WILL LAST FOR SOME ITME, BUT WILL EVENTUALLY RAIN IT SELF OUT. IF YOU WISH IT TO SUBSIDE EARLIER, RECITE "BREW OF STORMS, CLEAR IT UP"

PAGE CLXIX : BECOMING INVISIBLE
INGREDIENTS :
1 JAR OF LARD
1 CACTUS
1 SPOONFUL OF CACTUS JUICE
2 DROPS OF TOAD SPITTLE
MAGIC WAND

DIRECTIONS :
CUT THE CACTUS WITH A KNIFE
SQUEEZE THE CACTUS JUICE ON SPOON
PUT THE CACTUS JUICE IN A BOWL
PUT THE LARD IN THE BOWL
ADD 2 DROPS OF TOAD SPITTLE
STIR THE MIXTURE WITH A SPOON
RECITE :
CACTUS PLANT AND HORNY TOAD
I NOW START DOWN A DANGEROUS ROAD
COMBINE WITH FIRE AND MIST TO
MAKE ME DISAPPEAR WITHOUT A TRACE

WAVE MAGIC WAND
PUT OINTMENT IN THE EMPTY LARD JAR

YOU NOW HAVE A MAGIC OINTMENT THAT WILL ALLOW YOU TO TURN INVISIBLE. (BEWARE, THE OINTMENT ONLY WORKS IN A PLACE WHERE THERE IS BOTH FIRE AND MIST.) TO CAST THE INVISIBILITY SPELL, RUB THE OINTMENT ON YOUR BODY. YOU WILL BE INVISIBLE FOR A SHORT WHILE. YOU HAVE ENOUGH FOR ONE APPLICATION.



LEISURE SUIT LARRY HINTS

Solution to Leisuresuit Larry in the Land of the Lounge Lizards.
The manual is not required for solution.

NOTE : If you wish to bypass the annoying questions at the start of this game, use CTRL ALT X.

"Look in wallet". "Read business cards". Record phone number 209 683 6858. "Hail taxi" and "go to store" (1). "Look at phone" (1) and record number 555 6969. "Use phone" and "ring 555 6969" (2).
Answer questions.
Enter store and "take magazine" (1). "Read magazine" (1) to get a hint about rope. "Take wine" (1) and "buy rubber" (4). Leave shop and "answer phone" (5). "Offer wine to bum" who will give you a knife (5). "Ring Sierra On-Line" [209 683 6858] (5).

"Hail taxi" and "go to bar". "Open door" and "sit". "Order whiskey" (1). Go to back room and "offer whiskey to drunk" who will give you a remote control (2). "Take rose" (1) and "open door". "Sit" (1). "Stand" and go to sink. "Look in sink" and "take ring"(3). "Read graffiti" 4 times to get password KEN SENT ME (2).

"Open door" and go back to bar. "Knock on door" and "give password". "Press remote control" (3) and "change channels" 7 times (8) so guard will become absorbed in TV show. Go up stairs and "look at girl". "Strip" and "use rubber" (10).

"Screw girl" (11) then "remove rubber" (1). Go to table and "take candy" (2). "Open window" and "climb out". Go left to ladder and "search bin". "Take hammer" (3) and "climb out". Go left to front of bar and "hail taxi". "Go to casino".

"Buy apple" (3) and enter casino. Play slot machine saving game each time you win. Build cash to $250. Go to back of casino and "look in ashtray". "Take card" (1) then go to cabaret lounge and "sit" in rightmost chair (1). Leave casino, "hail taxi" and "go to disco".

"Show pass" (5) and "sit" (1). "Look at girl" then "ask her to dance" (5). "Sit" and "look at girl" again. "Talk to girl" several times (1). "Offer rose" (5), "offer candy" (5), "offer ring" (5) and "offer money" (7). Leave disco, "hail taxi" and "go to chapel".

"Talk to flasher" (1) then "open door". "Marry girl" (12) and leave chapel. "Hail taxi" and "go to casino" again. Play slot machine again to build bank balance (should be greater than $100). Go to elevator and "press four". "Knock" then "turn radio on" (1) which will result in your hearing the phone number (555 8039) for ordering wine.

"Talk to Fawn" who will tell you that she wants wine. Leave casino. "hail taxi" and "go to store". "Use phone" and ring "5558039". "Order wine" and ask them to "deliver to honeymoon suite" (5).

"Hail taxi" and "go to casino". Go back to honeymoon suite and "knock". "Pour wine" and attempt to "screw fawn". After you are tied up, "use knife" (10) and "take rope" (3). Play slot machine again to build cash. Leave casino, "hail taxi" and "go to bar".

Go to hooker's room and "climb out window". "Tie rope around waist" then "tie rope to railing". Try to "get pills". "Smash window"

then "take pills" (8). "Climb back", "untie rope" and go down ladder to bin. Climb out. "Hail taxi" and "go to casino".

Enter elevator and "press eight". "Look at girl" then "talk to girl" several times. "Give spanish fly to Faith" (5). "Look at desk" then "press button". Walk into elevator (5) and go into bedroom. "Open door" and "look". "Take doll" (5), "inflate doll" (5) and "screw doll".

Answer "yes" (8) then "look". "Talk to girl" then "strip". "Look at bracelet" then "pour wine". "Offer apple to Eve" (15).

The game should then conclude successfully with a final score of 221 out of a (supposed) possible 222. I know a lot of people who have achieved 221 but nobody, to my knowledge, has achieved 222. Are you having a little joke with us Sierra?

US RAINBOW

For many years the RAINBOW magazine from the USA was the premier source of information for the Colour Computer. In March of 92 the magazine went to a tabloid format and was reduced to around 25 to 30 pages however the price did not alter in any way. We in Australia, to receive the magazine in a timely fashion, have been paying almost $13(AUS) per issue compared to $3.95(US) in the States. While the magazine was 100 pages plus, it was worth the cost but now at only 15 pages, I personally think it is a bit expensive. The last magazine that I received, Feb 93, was as I said only 15 pages. My belief is that the magazine will in the near future cease to exist.

Where does that leave us? Well it means that we now have to look elsewhere for information about our beloved CoCo. To date there are a number of new magazines appearing on the market both on disk and in print.

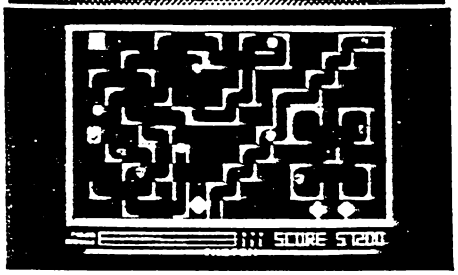
The best I have seen on disk is the Computer Friends Disk Magazine (CFDM) from Rick's Computer Enterprise, this disk caters for the basic CoCo user, that is those with 128K single sided drives using RSDOS. CFDM is a monthly disk and at $45(AUS) for a six month subscription is well worth the money. (CFDM is available in Australia through REMCOMS, see inside front cover).
As far as a printed magazine is concerned the most cost effective for us here in Australia is CoCo-Link, not because I produce it, but because it is cheaper than the ones from the States, it has all the information that the others have, it is produced with Australian content and contact with the magazine by either mail or phone is a hell of a lot cheaper. What must be remembered is that we the CoCo users can no longer rely on someone else to come up with the goods, we know what we want and we are capable of producing software and hardware to fill our needs and those of other users as well. So, as the song goes, "come on Aussie come on", lets make CoCo-Link THE premier magazine for the CoCo community and take over from and forge ahead from where RAINBOW pulls up.

WE AS AUSTRALIANS CAN DO IT!!!!
It is now up to YOU!!!

SUNDOG SYSTEMS

PHOTON

NEW!



Energy is everything; your home world depends on it. However, someone or something is slowly siphoning it away. As your world's champion, you must climb into the experimental Power Tank to challenge this nemesis and his minions. Your key lies with the ability to teleport solid mass. Use this to manipulate and explore the endless stronghold of the enemy, and to exploit the free-floating DUPES (Dense Units of Photon Energy) to destroy the menacing Plasma Droids. Be cautious, though; those DUPES can be deadly, too! Photon, a fantastic new arcade game for your Coco3, contains spectacular 320x200 resolution, 16 color graphics, ultra-smooth 60 Hz animation, and loads of real-time music and sound effects. It will send your mind racing over endless possibilities, requiring quick decisions and reactions. Quite simply, Photon is incredibly addictive; it will deliver hours of excitement. Will you become your world's greatest hero, or just another energy slave? Req. 128K CoCo 3 and disk drive.

GRAFEXPRESS 2.0

NEW!

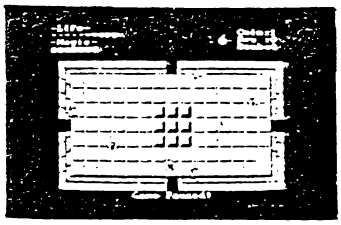
GrafExpress 2.0 is a complete graphics and music programming environment. From the beginner to the accomplished professional, you can use GrafExpress to create lightning fast arcade games, graphic applications and utilities, and windowing multimedia demonstrations! The GrafExpress package includes two incredible systems. GrafExpress 16 works on all monitor types and offers support in 12 graphic resolutions (from 128x192 to 320x225). GrafExpress 256 offers 6 resolutions (from 128x192 to 160x225 on a composite monitor) in an astounding 256 colors! Ever see a CoCo do that before? Both systems include standard graphics commands (CIRCLE, FILL, etc.) that blow away the competition. For example, the BOX command peaks out at over 2 MegaPixels/second; that's 300 times faster than BASIC! 255 separate sprites of up to 100x100 pixels each are supported with window clipping and high-res pixel level collision checking. The 8-octave/4-voice music synthesizer has independent envelope, waveform, and volume controls, a 7 + KHz sampling rate, and much more. Other features include text/graphics mixing, different font sizes, fast window copying and scrolling, picture save/load, easy implementation from both BASIC and assembly language, multiple screen animation, and support for 128K/512K, double speed, and the high-res joystick interface. The package also contains support programs that are worth the purchase price of GrafExpress alone! These include an introductory demo, a picture editor, a waveform editor, and an art program that supports 256 colors! GrafExpress also comes with a 50 page manual that fully explains all of its incredible features. If you do any graphics programming or simply want to see what your little CoCo is capable of, GrafExpress is a must! Req. 128K CoCo 3 and disk drive.

War Monger

NEW!

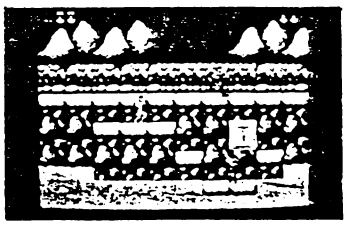
The world is in unrest. Power-hungry villains and evil warlords are readying their forces. It falls to you to lead your people against these armies, and only your best strategic plans can save the day. Fight the good fight in any era or locale. Play a simple game of capture the flag armed with water balloons, or climb into the cockpit of a 100 foot high armored warrior. Explore the deepest dungeons, defend your galaxy, or create your own scenarios with this incredible war game construction set/simulator. Your imagination is your only limit. You will deploy your forces with total control over hostile terrain while you scroll a graphic bird's-eye window over an immense world. War Monger has terrific 320x200 resolution, 16 color graphics and includes a tile editor to create or edit your own. Play against the computer, battle with another player, or simply watch the computer plot against itself. The enemy is everywhere. Are you ready to take on the challenge as the War Monger? Req.
128K CoCo 3 and disk drive.

The Quest for THELDA



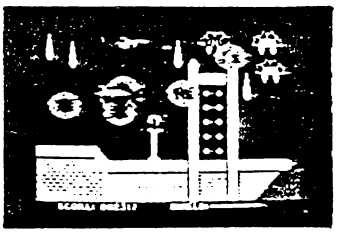
An immensely popular 128K CoCo 3 arcade/adventure. Over 500 screens of fast fantasy action and puzzle solving. Great graphics and sound effects.

THE CONTRAS



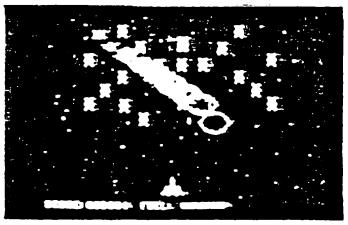
A 512K two player futuristic combat arcade game. Full screen 320x225 hardware scrolling and smooth animation. Back-ground music score and sound effects! 512K Coco3 only.
Shipping soon!

Crystal City



This was THE game of '91! Ultra-fast space action with hardware scrolling on a 128K CoCo 3. Wild sound effects and over 30 MegaBytes of amazing graphics!

ZENIX



Lightning fast arcade game for the 128K CoCo 3. Terrific 320x225 graphics, back-ground music score and sound effects, and out-of-sight game play >

ALSO AVAILABLE

Warrior King
CoCo 3

In Quest of the Star Lord
CoCo 3
Hint Sheet

Hall of the King 1, 2 or 3
CoCo 1 - 3

Hall of the King Trilogy

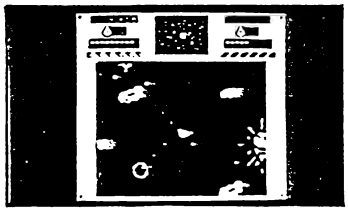
White Fire of Eternity
CoCo 1 - 3

Dragon Blade
CoCo 1 - 3

Champion
CoCo 1 - 3

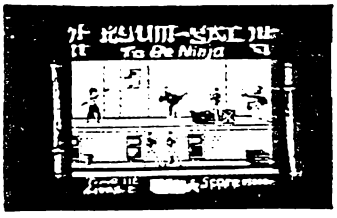
Paladin's Legacy
CoCo 1 - 3

Sinistaar

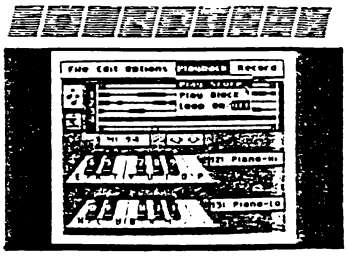


Everyone loves this 512K arcade game. 3 disks packed with spectacular graphics and eerie background digital sound effects. 512K CoCo 3 only.

KYUMI-SAI To Be NINJA



The best selling 128K CoCo 3 martial arts arcade game. Now available in both RS-DOS and OS-9 versions. Play the incredible combat experience you've been missing under the operating system of your choice!



A polyphonic digital sound sequencing system for your 128K/512K CoCo 3 with a user-friendly point-and-click graphic editor. Create music scores with your own sounds or from the many we provide.

Sample instrument disks: 6 sides of sampled sounds/instruments.

Sundog systems

SUNDOG SYSTEMS
P.O. Box 766 Manassas, VA 22111
703/330-8989

The above software is available in Australia through REMCOMS

COCOIST CONTACT LIST

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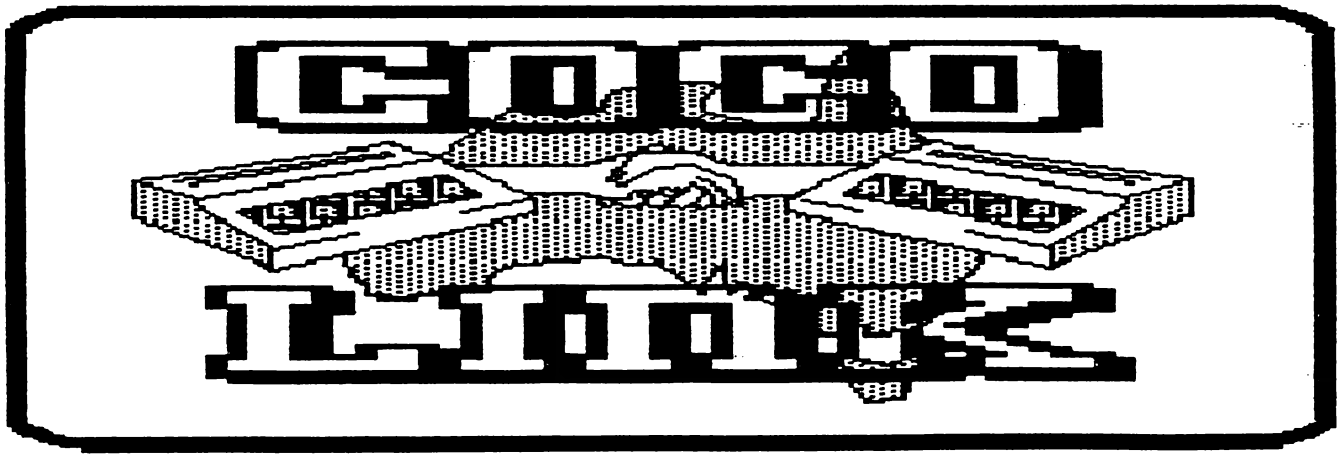
Blazejewski Stan		Mordiallic/VIC	03 580 4605
Boardman William	10 Eltham Ave	Pt Lincoln/SA 5606	086 82 2385
Bye Graham	9 Airlie Bank Rd	Morwell/VIC 3840	051 34 5954
Cameron William	2/22 Warren St	St Lucia/QLD 4067	07 371 4736
Colls Jason	16 Clavus St	Geelong/VIC 3214	052 75 5450
Cooper Len&Shirley	223 Elswick St	Leichardt/NSW 2040	
Cosier W.F	32 Argyll St	Coffs Harbour/NSW 2450	066 524 056
Cunnigham Eric	7 Nuthatch St	Inala/QLD 4077	07 372 2980
Dalzell Robbie	31 Nedland Cres	Pt Noarlunga/SA 5167	08 386 1647
Devries Bob	21 Virgo St	Inala/QLD 4077	07 372 7816
Donges Geoff	PO Box 326	Kippax/ACT 2615	06 254 9354
Eadsforth Jim	PO Box 329	Goolwa/SA 5214	
Edwards Peter	40 Davison St	Litcham/VIC 3132	03 873 5249
Elphick Graham	26 Birch St	St Mary's/NSW 2760	02 623 8141
Gall Brian	PO Box 131	Cooranbong/NSW 2265	049 772 178
Holder Garry	229 Esplanade	Seaford/SA 5161	08 386 1139
Hutchinson Simon	10 Ascit Court	Nth Dandenong/VIC 3175	
Ikin J	42 Spruce Dve	Romville/VIC 3178	03 759 6253
Johnson Fraser	35 Robson Ave	Gorokan/NSW 2263	043 923 298
Kenny Bob	3/14 Bellingen Rd	Coffs Harbour/NSW 2450	066 51 2205
Lidgard Ron	17 Acacia St	Thornlands/QLD 4164	
McGrath John	93 Lemon Guns Dr	Tamworth/NSW 2340	067 618 071
McLintock George	7 Logan St	Narrabundah/ACT 2604	06 295 6590
McNabb John	PO Box 109	Boronia/VIC 3155	03 758 9008
Morgan Peter		Cooyar/QLD 4402	076 926 248
Munro Ron	91 Blackburn Rd	Elizabeth E/SA 5112	08 255 0405
Murrells Alan	5 Goulburn Ave	Corio/VIC 3214	052 75 3065
Quinn Stephen		Orange/NSW	063 62 0519
Rae Desmond	PO Box 2076	Mt Isa/QLD 4825	077 43 3486
Remin Fred	11 Corcoran Cres	Canungra/QLD 4275	075 435 821
Remin Fred (1)	3/1 Franklin St	East Doncaster/VIC	03 842 8545
Rosch Raymond	5 Euphrates Pl	Kearns/NSW 2558	02 820 7228
Schmidt Richard	5a Stephens Ave	Torrensville/SA 5031	08 354 0951
Steman John	PO Box 680	Windsor/NSW 2755	
Stephen Dr Val	1 Mabel St	Camberwell/VIC 3124	
Stevens Darren	16 Hewitt St	Colac/VIC 3250	052 311 795
Thompson Sam	18 Taylor St	Biggers Wtrs/QLD 4416	
Vagg Johanna	9 Belah St	Forbes/NSW 2871	068 52 2943
Williams Arthur	67 High St	Harrington/NSW 2427	065 56 1517

If you would like your name included in the above list in order to help other cocoists and to maintain contact between us, then send the above information to me for inclusion.

Do you know of the existence of a user group in your area or are you considering starting one up again? Let me know the details including the contact names and phone numbers, meeting place, times etc, and I will print it in this magazine.

REMEMBER, USER GROUPS ARE THE BACKBONE OF THE COCO COMMUNITY!



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